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EXAMINER

MAYO, TARA L

ART UNIT PAPER NUMBER

3671

DATE MAILED: 11/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/645,142             | IRVINE, JOHN E.     |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Tara L. Mayo           | 3671                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14-28 and 30 is/are pending in the application.
- 4a) Of the above claim(s) 17-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-16, 24-28 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/18/05</u> <u>01 Sep 2005</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1 through 13, drawn to a process for producing a reinforced structural element, classified in class 428, subclass 122.
  - II. Claims 14 through 29, drawn to a reinforced structural element, classified in class 405, subclass 274.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by pultrusion.

3. This application contains claims directed to the following patentably distinct species of the claimed invention:

Species A, a planar reinforced structural panel, as seen in Figures 1 and 2;

Species B, a substantially planar reinforced structural member including laterally extending sidewalls, as seen in Figure 3;

Species C, an I-shaped structural member including a longitudinally extending reinforcement member, as seen in Figure 4A;

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Species D, an I-shaped structural member including a longitudinally extending reinforcement member having ends laterally offset from one another, as seen in Figure 4B;

Species E, an I-shaped structural member including a longitudinally extending reinforcement member having ends extending in the same direction, as seen in Figure 4C;

Species F, a structural member including a pair of reinforcing elements that are V-shaped in cross section, as seen in Figure 5A;

Species G, a structural member including a pair of U-shaped reinforcing elements disposed substantially parallel and juxtaposed to one another, as seen in Figure 5B;

Species H, a U-shaped reinforced structural member, as seen in Figure 6;

Species I, a U-shaped reinforced wall panel segment having male and female end connectors, as seen in Figure 7A; and

Species J, a reinforced wall panel segment having male and female end connectors, as seen in Figure 7B.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 14, 15 and 25 through 29 are generic to all the species; claims 16 and 17 are generic to Species B through E and H through J; claim 18 is generic to Species C through E; claim 19 is generic to Species B through E and H; claim 23 is generic to Species B and H; and claim 25 is generic to Species I and J.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims

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readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. During a telephone conversation with George Thomas on 12 April 2005 a provisional election was made without traverse to prosecute the invention of Group II, Species I, claims 14 through 16 and 24 through 29. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1 through 13 and 17 through 23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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***Claim Objections***

5. The prior objection to claim 29 has been overcome by the response filed 12 August 2005.

***Claim Rejections - 35 USC § 112***

6. The prior rejection of claim 24 under 35 USC §112, second paragraph has been overcome by the response filed 12 August 2005.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 14 through 16 and 24 through 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Specification as originally filed fails to provide support for the equally spaced openings uniformly connecting the exterior body to the elongate reinforcing structure at the equally spaced openings as set forth in claim 14 on lines 5 through 7.

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9. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of claim 26 is indefinite because it is unclear how fiberglass can be considered a high strength expanded metal sheet material as previously recited in claim 1.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 14 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dingler (U.S. Patent No. 5,511,355A) and *Expamet - The Expanded Metal Company Limited*.

Dingler '355, as seen in Figures 1 and 3, shows a reinforced structural member comprising:

with regard to claim 14,

an elongate reinforcing structure formed of high strength material defining an array of equally spaced openings there through;

an exterior body of water-impermeable material positioned about and in contact with said reinforcing structure; and

wherein said reinforcing structure is encapsulated within said exterior body; and

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with regard to claim 25,

wherein said high strength material is aluminum (col. 3, lines 65 through 66).

Dingler '355 fails to teach:

the reinforcing material formed of expanded metal sheet material.

*Expamet* shows expanded metal with uniformly spaced openings and teaches multiple advantages of using expanded metal compared with sheet metal including cost efficiency and higher strength-to-weight ratio.

With regard to claim 14, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device shown by Dingler '355 such that it would include expanded metal as taught by *Expamet*. The motivation would have been for cost efficiency and to impart higher strength-to-weight ratio to the overall structure.

12. Claims 14, 15, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nottingham (U.S. Patent No. 6,715,964 B2) in view of *Expamet - The Expanded Metal Company Limited*.

Nottingham '964, as seen in Figure 7, discloses a reinforced structural member (700) comprising:

with regard to claim 14,



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an elongate reinforcing structure formed of high strength material (col. 8, lines 45 through 49); and

an exterior body of water-impermeable synthetic material positioned about and in contact with said reinforcing structure (col. 8, lines 45 through 49); and  
with regard to claim 25,

wherein said high strength material is aluminum (col. 8, line 47);  
with regard to claim 26,

wherein said high strength material is fiberglass (col. 8, line 47).

Nottingham '964 fails to teach:

with regard to claim 14,

the reinforcing structure defining an array of equally spaced openings and being encapsulated within the exterior body; and

with regard to claim 15,

the reinforcing structure being comprised of steel and having a thickness from approximately 0.010 to 0.750 inch.

*Expamet* shows expanded metal with uniformly spaced openings and teaches multiple advantages of using expanded metal compared with sheet metal including cost efficiency and higher strength-to-weight ratio.

With regard to claim 14, it would have been obvious to one having ordinary skill in the art of structural materials at the time the invention was made to modify the device

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shown by Nottingham '964 such that the reinforcing structure would be formed from expanded metal sheet material as taught to be beneficial by *Expamet* for reducing materials costs and increasing the strength of structural members.

With regard to claim 15, while Nottingham '964 is silent with respect to the particular type of metal used as reinforcement, it is a well-known expedient in the art of materials to use steel for reinforcing composite structures.

With regard to claim 15, Nottingham '964 and *Expamet* fail to teach the claimed range of thickness for the steel reinforcing structure. It would have been obvious to one having ordinary skill in the art of stock materials at the time the invention was made to make the thickness between 0.010 and 0.750 inch since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the device shown by the combination of Nottingham '964 and *Expamet* is capable of being manufactured with a thickness in the claimed range.

13. Claims 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nottingham (U.S. Patent No. 6,715,964 B2) in view of *Expamet - The Expanded Metal Company Limited* as applied to claim 14 above, and further in view of Lewis (U.S. Patent No. 5,333,971A).

Nottingham '964, as seen in Figure 7, further shows:  
with regard to claim 24,

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the exterior body including a male interlocking connector (the connector on the right end) and a female interlocking connector (the connector on the left end) on opposite lateral edges.

Nottingham '964 and *Expamet* fail to teach:

with regard to claim 16,

the reinforcing structure comprising a substantially planar elongate central wall and a pair of side walls extending along opposed lateral edges of the central wall; and

with regard to claim 24,

the reinforcing structure including a plurality of planar sections and a pair of lateral edges.

Lewis '971, as seen in Figures 1 and 2, shows a structural member (10) comprising a substantially planar elongate central wall (18) and a pair of side walls (17) extending along opposed lateral edges of the central wall; or a plurality of planar sections (14, 16 and 18) and a pair of lateral edges (17).

With regard to claims 16 and 24, it would have been obvious to one having ordinary skill in the art of wall structures at the time the invention was made to modify the device shown by the combination of Nottingham '964 and *Expamet* such that it would be shaped as taught by Lewis '971. The motivation would have been to permit its use in a wall structure having a desired configuration.

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14. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nottingham (U.S. Patent No. 6,715,964 B2) in view of *Expamet - The Expanded Metal Company Limited* and Ellison et al. (U.S. Patent Application Publication No. 2003/0003828 A1).

Nottingham '964, as seen in Figure 7, discloses a reinforced structural member (700) comprising:

with regard to claim 27,

an elongate reinforcing sheet formed of high strength material (metal; col. 8, lines 45 through 49);

an exterior body of water-impermeable synthetic material positioned about and in contact with said reinforcing structure (plastic; col. 8, lines 45 through 49);

said exterior body having a length, a width and a thickness; and

said reinforcing structure being of greater tensile and compressive strength than said exterior body.

Nottingham '964 fails to teach:

with regard to claim 27,

the reinforcing structure formed of foraminous material defining an open network of openings there through, the exterior body being locked to the reinforcing structure by extending through the openings, the reinforcing structure extending along the entire length and width of the exterior body and having greater tensile and compressive strengths than the exterior body; and

the exterior body surrounding the reinforcing structure;

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with regard to claim 28,

the reinforcing structure comprising expanded sheet metal;

with adjacent parallel lines of openings, with each line of openings longitudinally off set from the openings of the adjacent lines of openings.

*Expamet* shows expanded metal with uniformly spaced openings and teaches the advantageous use of expanded metal compared with sheet metal including cost efficiency and higher strength-to-weight ratio, wherein the

Ellison et al. '828, as seen in Figures 2 through 6, disclose a plastic article comprising a reinforcing structure (48) encapsulated (paragraph 0038) between plastic layers (40, 50), wherein the reinforcing structure extends along the entire length and width of the plastic layers and has greater tensile and compressive strengths than the plastic layers, wherein the reinforcing structure may comprise a metal or metal mesh (paragraph 0008; i.e., having equally spaced openings), wherein the exterior body is locked to the reinforcing structure by extending through the openings, and wherein the openings in the reinforcing structure retard the spread of corrosion.

With regard to claim 27, it would have been obvious to one having ordinary skill in the art of stock materials at the time the invention was made to modify the device shown by Nottingham '964 such that the metal would be expanded metal mesh with an array of equally spaced openings as taught by *Expamet* and Ellison et al. '828. The motivation would have been to improve the strength-to-weight ratio.

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With regard to claim 27, it would have been obvious to one having ordinary skill in the art of stock materials at the time the invention was made to modify the device shown by Nottingham '964 such the exterior body would surround the reinforcing sheet as taught by *Expamet* and Ellison et al. '828 to improve impact resistance or flexural strength (paragraph 0041).

With regard to claim 28, the method of forming the exterior body is not germane to the issue of patentability of the device itself. Therefore, the limitation of extrusion has not been given patentable weight.

15. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nottingham (U.S. Patent No. 6,715,964 B2) in view of *Expamet - The Expanded Metal Company Limited*, Ellison et al. (U.S. Patent Application Publication No. 2003/0003828 A1) and Lewis (U.S. Patent No. 5,333,971).

Nottingham '964 teaches all of the features of the claimed invention with the exception(s) of:

the structural member being an approximate spread U-shape;

the reinforcing structure formed of foraminous material defining an open network of equally spaced openings there through;

the exterior body surrounding the reinforcing structure;

the reinforcing structure comprising expanded sheet metal.

*Expamet* shows expanded metal with uniformly spaced openings and teaches the advantageous use of expanded metal compared with sheet metal including cost efficiency and higher strength-to-weight ratio, wherein the

Ellison et al. '828, as seen in Figures 2 through 6, disclose a plastic article comprising a reinforcing structure (48) encapsulated (paragraph 0038) between plastic layers (40, 50), wherein the reinforcing structure extends along the entire length and width of the plastic layers and has greater tensile and compressive strengths than the plastic layers, wherein the reinforcing structure may comprise a metal or metal mesh (paragraph 0008; i.e., having equally spaced openings), wherein the exterior body is locked to the reinforcing structure by extending through the openings, and wherein the openings in the reinforcing structure retard the spread of corrosion.

Lewis '971, as seen in Figure 2, shows a structural member in an approximate spread U-shape.

With regard to claim 30, it would have been obvious to one having ordinary skill in the art of stock materials at the time the invention was made to modify the device shown by Nottingham '964 such that the metal would be expanded metal mesh with an array of equally spaced openings as taught by *Expamet* and Ellison et al. '828. The motivation would have been to improve the strength-to-weight ratio.

With regard to claim 30, it would have been obvious to one having ordinary skill in the art of stock materials at the time the invention was made to modify the device

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shown by Nottingham '964 such the exterior body would surround the reinforcing sheet as taught by *Expamet* and Ellison et al. '828 to improve impact resistance or flexural strength (paragraph 0041).

With regard to claim 30, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device shown by the combination of Nottingham '964, *Expamet* and Ellison '828 such that it would be U-shaped as taught by Lewis '971. The motivation would have been to effect a bulkhead having a desired configuration.

#### ***Response to Arguments***

16. Applicant's arguments with respect to claims 14 through 16 and 24 through 28 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tara L. Mayo whose telephone number is 571-272-6992. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571-272-6998. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
tim

30 October 2005

  
Thomas B. Will  
Supervisor, Examiner  
Oct 10 2005